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In this Issue:

- [Hot Topics](#)
 - Updated Well Abandonment Forms
 - DNR Solid Waste Contacts
- [Report: Generation Rate and Storage of Leachate in Iowa](#)
- [Facility Spotlight: South Dallas County Landfill](#)
- [Special Wastes: Using Generator Knowledge for Disposal](#)
- [Product Stewardship](#)
- [Use of Sodium Bentonite Geosynthetic Clay Liners](#)

Hot Topics

- Updated [Well Abandonment Forms](#) (Form #542-1226) are now available. Questions? Contact Anne Lynam at 515-725-0280 or Anne.Lynam@dnr.iowa.gov.
- [DNR Solid Waste Contacts](#)
The Solid Waste Section has many different programs and responsibilities. The above PDF is a list of solid waste section staff members and the subject areas that they are responsible for. If you ever have questions please don't hesitate to contact staff. Also, if a subject area is not on this list, you can still call us! We will work with you to find the most appropriate person to answer your questions.

Report: Generation Rate and Storage of Leachate in Iowa

A compilation of the data received in the 2010 Leachate Collection System Evaluation Reports indicates that at active sites:

- 1) 2010 leachate generation ranged from 0 gallons at three sites* in Iowa to 12,291,400, 18,289,620, and 20,200,000 gallons at three sites.
- 2) The average leachate storage volume is 643,758 gallons with the largest storage volume of 3,093,467 gallons.
- 3) The average leachate generation rate was 364 gallons per acre per day.
- 4) The largest leachate generation rate was 1,066 gallons per acre per day (excluding a rate of 2,505 gallons per acre per day at a new cell).
- 5) Total 2010 leachate generation (excluding closed landfills) was 119,860,215 gallons.**
- 6) The largest closed landfill generation rate was 1,382,500 gallons per year.

*Two of these sites had recently completed new storage lagoons that were still filling in 2010.

**Data still being compiled or not recorded (e.g. landfill with direct gravity line to sanitary sewer has no flow data) at three sites.

Facility Spotlight: South Dallas County Landfill

Tire Derived Aggregate and Cell Construction

This year the South Dallas County Landfill completed construction of a new landfill cell that included the use of Tire Derived Aggregate (TDA) in the leachate collection system. The Construction Quality Assurance Plan (CQAP) included field procedures to ensure that the received TDA was of high quality. A recent field visit by DNR staff indicated that the implementation of the CQAP was very successful. If interested in the specifics of the TDA portion of the CQAP, review [DNR Document No. 65305](#).

Special Wastes: Using Generator Knowledge for Disposal

Waste analysis involves identifying or verifying the chemical and physical characteristics of a waste by performing detailed chemical and physical analyses of the waste or, in certain cases, by applying acceptable knowledge of the waste.

Whether one uses generator knowledge alone or adds sampling and analysis data, detailed documentation must be maintained that clearly demonstrates the information is sufficient to identify the waste. Documentation used to support generator knowledge may include, but is not limited to:

- Material Safety Data Sheets (MSDS) or similar documents (Once a raw material has been used in a process, it is a new waste, and an MSDS will not sufficiently characterize the new waste stream).
- A thorough process description, including data on all raw materials used in the process.
- Other forms of documentation.

Note: Concerning MSDSs, the OSHA regulations do not require manufacturers to identify constituents present in the material at concentrations below 1% (10,000 ppm) for non-carcinogens or below 0.1% (1,000ppm) for carcinogenic constituents. Therefore, the product might contain toxicity characteristic constituents above RCRA regulatory levels even though they are not identified on the MSDS. Also, MSDSs quickly get out of date, thus, knowledge-based evaluations made using old data sheets may be incorrect.

Although sampling and analysis are not as economical or convenient as using generator knowledge, they usually provide advantages. Because accurate waste determinations are such a critical factor for demonstrating compliance with RCRA, misidentification can render the facility liable for enforcement actions. In addition, accurate waste analysis is critical for meeting some of the requirements of other regulatory programs such as effluent discharges under the Clean Water Act and hazardous materials placard requirements in Department of Transportation rules.

Product Stewardship

New and improved products continually come on the market, making what we already own seem old and outdated. As we continually chase after the newest products with the latest features, we discard products at an ever increasing rate. Products are no longer designed to last and be repaired but instead designed to run out, be tossed away and replaced. In the United States, 426,000 cell phones are discarded every day.

In addition to the increase in the volume of products being discarded, the toxicity of waste we produce is increasing as well. Computers, televisions, paint, mercury thermometers and thermostats, fluorescent lamps, rechargeable batteries, anything with a printed circuit board and a whole host of other household products contain toxics such as lead, mercury, cadmium, and other heavy metals and toxins. Although safe when used properly, when these products reach the end of their useful life, they require special management to avoid releasing the toxins to the environment.

The burden of providing management and disposal of wastes has traditionally fallen on local governments. Putting this cost on taxpayers is essentially a government subsidy for the manufacturers. Without responsibility for their product at its end of life, manufacturers have no incentive to produce products that contain fewer toxics or are easier to recycle.

In response, state and local governments have started advocating for policies and programs based on the principles of product stewardship. Product stewardship is the idea that all parties (manufacturer, retailer, and consumer) involved in a product's life cycle have a responsibility for that product's environmental impacts, including end-of-life management. The most important principle behind product stewardship is that the greater a party's ability to minimize a product's environmental impacts, the greater that party's responsibility for those impacts. Manufacturers have the ability to control what goes into a product so logically they have a responsibility for either eliminating the hazardous components or providing proper end-of-life management of the product. In true product stewardship, the cost to manage a product at the end of its useful life is incorporated into the cost of the product, in the same fashion as its marketing or transport.

Product stewardship has been gaining momentum both in the United States and abroad in recent years. The map below shows the number of product stewardship laws in each state. Iowa has laws requiring manufacturers to implement collection programs for mercury containing thermostats, mercury-containing convenience lighting switches from vehicles, and rechargeable batteries. There are also voluntary programs for cell phones, electronics, and compact fluorescent lamps.

To learn more:

- The [Product Stewardship Institute](#) is conducting its fall webinar series covering everything from thermostats to mattresses.
- [Call2Recycle](#) will be hosting a series of webinars that will bring together recycling managers, coordinators, household hazardous waste supervisors and other experts from across the United States to discuss issues that are critical to extended producer responsibility (EPR) and recycling programs within municipalities large and small.

- Auto Switches
- Batteries
- Carpet
- Cell Phones
- Electronics
- Fluorescent Lighting
- Mercury Thermostats
- Paint
- Pesticide Containers

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 Zero
  One
  Two

 Three
  Four
  Five
  Six

* Other laws authorizing agencies to require EPR, including Framework laws.

Use of Sodium Bentonite Geosynthetic Clay Liners_

The DNR is receptive to reviewing a variance request to Iowa Administrative Code 567-113.7(5)"a"(1) that includes demonstrations of equivalence (both advective flux [i.e., leakage] and diffusive flux equivalence must be demonstrated) of liner systems that consist of minimum of (from bottom to top) soil layer, geosynthetic clay liner (GCL), and flexible membrane liner (FML). The demonstration of equivalence would require comparison of the proposed soil/GCL substitution to the now required 2 feet of compacted soil with a permeability of 1×10^{-7} cm/sec or less. Once approved the proposed liner would be considered equivalent to the composite liner described in 113.7(5)"a"(1)[1]. The demonstration may require the addition of a soil layer (also known as an "attenuation" layer) below the GCL to show diffusive flux equivalence; however the inclusion of the attenuation layer (except for removal of stones or sharps that may damage the overlying components) will be waived if in situ testing of the existing subgrade demonstrates a 40-inch thick unsaturated attenuation layer with a hydraulic conductivity of less than or equal to 5×10^{-7} cm/sec (see GRI-GCL5).

Because the GCL is resistive to damage from freeze/thaw, the DNR would also allow the approved GCL composite liner to be exposed to specified freeze/thaw cycles provided that the demonstration successfully indicates advective flux equivalence using acceptable degraded hydraulic conductivity values corresponding to the planned number of freeze/thaw cycles.

An additional benefit, if pursued, would be DNR review of a leachate recirculation plan.

Of note, the certifying design and certifying construction engineer must include the proposed GCL component in all slope stability evaluations. There are many variations of the product commonly called a GCL and therefore testing of the actual interface shear strength properties are required of all the liner (and cap components) during construction to ensure that the selected products meet the design requirements. The slope stability evaluation shall include all of the components of the proposed landfill disposal unit including subgrade up through the top of the final cover system and any less stable phasing before final grade and cover is placed. EPA guidance (EPA/530/R-93/017) requires that the completed landfill have a minimum static factor of safety against slope failures of 1.5.

Other GCL design considerations that shall be included in any demonstration of equivalency include; 1) total settlement response, 2) GCL panel separation potential, 3) subgrade specifications for compaction, smoothness and stones including puncture resistance and re-sealing, 4) freeze-thaw cycling impact, 5) dry-wet cycling impact, and 6) cation ion exchange impact on the proposed system (see GRI-GCL5).

In addition, the construction quality control and assurance plan needs to include key aspects of the use of any proposed GCL and it is recommended that the construction quality control and assurance plan incorporate methods proposed by Daniel and Koerner 2007.

References:

- 1) Daniel, David E. and Robert M. Koerner, Waste Containment Facilities, Guidance for Construction Quality Assurance and Construction Quality Control of Liner and Cover Systems, 2nd Edition 2007
- 2) GRI-GCL5 Standard Guide for "Design Considerations for Geosynthetic Clay Liners (GCLs) in Various Applications" Dated January 26, 2011

[1] Future intent would be to include this liner system design as an additional composite liner system during the next update to Iowa's administrative rules.

Our staff is here to provide the assistance you need to protect Iowa's environment. Please [contact us](#) with any questions or feedback.